REMARKS

Claims 5-8 are pending in this application. Independent claims 5 and 7 have been amended to further distinguish over the prior art. Support for all claim amendments can be found in the specification as originally filed. No new matter has been added.

The Examiner is thanked for restarting the period for response to three (3) months from the Office Action issued on April 7, 2003.

Rejections Under 35 U.S.C. §103

I. Claims 5 and 6

Claims 5 and 6 stand rejected under 35 U.S.C. §103 for obviousness over U.S. Patent No. 4,849,166 to Hoshino et al. (hereinafter "Hoshino") or U.S. Patent No. 5,429,688 to Barbosa et al. (hereinafter "Barbosa").

Amended independent claim 5 is directed to a high-strength austenitic stainless steel strip exhibiting excellent flatness with a Vickers hardness of 400 or more. The high-strength austenitic stainless steel has a composition including 0-0.20 mass % C, 0-4.0 mass % Si, 0-5.0 mass % Mn, 4-12.0 mass % Ni, 12-20 mass % Cr, 0.24-5.0 mass % Mo, 0-0.15 mass % N with the balance being Fe and inevitable impurities. The steel additionally has a value Md(N) in a range of 0-125 defined by a formula: Md(N)=580-520C-2Si-16Mn-16Cr-23Ni-26Cu-300N-10Mo, and has a dual-phase structure of austenite and martensite which includes a reversion austenitic phase at a ratio more than 3 vol.%.

The Hoshino patent discloses an austenitic/martensitic stainless steel having high-strength, high toughness, high ductility and corrosion resistance. The Barbosa patent discloses cold deformed work hardened stainless steel. The steel has a martensite and austenite structure, with a high resistance to corrosion.

The Examiner asserts that even though the prior art does not teach reverted austenite, such would not be a patentable distinction because determination of patentability is based on the product itself and not process limitations. However, the limitation of the presence of reversion austenitic phase at a ratio more than 3 vol.% is a product limitation, as it describes the structure of the stainless steel product. This product limitation is not taught or suggested in the cited art.

Hoshino does not teach or suggest a high-strength austenitic stainless steel including 0.24-5.0 mass % Mo, having a dual-phase structure of austenite and martensite which includes a reversion austenitic phase at a ratio more than 3 vol.%, as claimed in amended independent claim 5. Independent claim 5 has been amended to include a molybdenum content of 0.24-5.0 mass % to further distinguish over Hoshino. Hoshino does not teach or suggest a steel composition including 0.24-5.0 mass % molybdenum, and moreover would be limited to the steel composition recited in their claims because of the phrase "consisting of".

Furthermore, Hoshino does not teach or suggest a dual-phase "steel structure of austenite and martensite including a reversion austenitic phase at a ratio more than 3 vol.%." While Hoshino discloses a steel structure having a larger amount of martensite, Hoshino does not teach or suggest a structure having a reversion austenitic phase at a ratio more than 3 vol.%. Additionally, Hoshino does not teach or suggest a high-strength austenitic stainless steel strip exhibiting excellent flatness by having a reversed austenitic phase at a ratio more than 3 vol.%. Furthermore, the steel of Hoshino does not inherently possess a dual-phase structure with a reversion austenitic phase at a ratio more than 3 vol.% since the product limitation of a reversion austenitic phase at more than 3 vol.% is achieved by heat treating at 500-700°C, which is not taught or suggested by Hoshino. Therefore, for

all of the above reasons, reconsideration of the rejection to amended independent claim 5 is respectfully requested.

Barbosa, either alone or in combination with Hoshino, does not teach or suggest the invention of amended independent claim 5. Specifically, Barbosa does not teach or suggest a high-strength austenitic stainless steel strip exhibiting excellent flatness with a Vickers hardness of 400 or more. Barbosa discloses a stainless steel composition having good corrosion resistance and not excellent flatness. Additionally, Barbosa does not teach or suggest a Md(N) value of 0-125 defined by the formula: Md(N)=580-520C-2Si-16Mn-16Cr-23Ni-26Cu-300N-10Mo as in amended independent claim 5. Thus, while there may be an overlap in ranges of some of the claimed elements, the composition in Barbosa does not satisfy the Md(N) requirement in amended independent claim 5. Furthermore, while Barbosa discloses a structure of martensite and austenite, it does not teach or suggest a structure having a reversion austenitic phase at a ratio more than 3 vol.% as in amended independent claim 5. The steel of Barbosa also does not inherently possess the reversion austenitic phase claimed in claim 5 for the same reasons discussed above with respect to Hoshino. Therefore, reconsideration of the rejection to amended independent claim 5 is respectfully requested.

Claim 6 depends from and adds further limitations to amended independent claim 5 and is deemed to be patentable for the reasons disclosed hereinabove in connection with amended claim 5. Reconsideration of the rejection of claim 6 is respectfully requested.

II. Claims 5-8

Claims 5-8 stand rejected under 35 U.S.C. §103(a) for obviousness over U.S. Patent No. 5,171,384 to Igawa et al. (hereinafter "Igawa"). Igawa discloses a high-strength steel strip excellent in shape having a duplex structure of austenite and martensite. The strip continuously passes through a heat treatment furnace where the strip is heated to a

temperature not higher than 900°C so that a part of the martensitic phase may be changed to a reversed austenitic phase.

Claim 5 has been discussed above. With respect to claim 5, the Examiner states that Igawa discloses specific stainless steel examples which meet the claimed composition and satisfy the Md(N) value and annealing at a temperature range of 700-750°C to induce reversion of the austenitic phase. Applicants respectfully disagree. Igawa does not teach or suggest an austenitic stainless steel having a dual-phase structure of austenite and martensite including a reversion austenitic phase at a ratio more than 3 vol.%, as claimed in amended independent claim 5. While Igawa discloses that a part of the martensitic phase may change to a reversed austenitic phase, it does not teach or suggest a dual-phase structure having the specifically claimed ratio of more than 3 vol.% of reversion austenitic phase. Additionally, Igawa discloses a martensitic steel, while the steel in amended independent claim 5 is an austenitic steel. Therefore, reconsideration of the rejection of amended independent claim 5 is respectfully requested.

Amended independent claim 7 is directed to a method of manufacturing a high-strength austenitic stainless steel strip excellent in flatness of shape with Vickers hardness of 400 or more. The method includes providing an austenitic stainless steel strip having a composition including 0-0.20 mass % C, 0-4.0 mass % Si, 0-5.0 mass % Mn, 4.0-12.0 mass % Ni, 12.0-20.0 mass % Cr, 0.24-5.0 mass % Mo, 0-0.15 mass % N. The composition optionally includes at least one or more of 0-3.0 mass % Cu, 0-0.5 mass % Ti, 0-0.50 mass % Nb, 0-0.2 mass % Al, and 0-0.015 mass % B, REM (rare earth metals) up to 0.2 mass %, 0-0.2 mass % Y, 0-0.1 mass % Ca, and 0-0.10 Mg with the balance being iron except inevitable impurities, the steel strip has a value Md(N) of 0-125 defined by formula Md(N)=580-520C-2Si-16Mn-16Cr-23Ni-26Cu-300N-10Mo. The steps further include

solution heating the austenitic stainless steel strip, cold rolling the austenitic stainless steel strip to generate a deformation induced martensite phase, and reheating the cold rolled austenitic stainless steel strip at 500-700°C to induce a phase reversion by which an austenitic phase is generated at a ratio of 3 vol.% or more in a matrix composed of the deformation induced martensite phase.

With respect to claim 7, Igawa does not teach or suggest a method of manufacturing a high-strength austenitic stainless steel as claimed in amended independent claim 7. While the Igawa patent discloses a heat treatment carried out at a temperature within the range from the As point of the steel +30°C to the Af point of the steel and not higher than 900°C, the Igawa patent does not teach or suggest solution-heating an austenitic stainless steel strip, cold-rolling the strip to generate deformation-induced martensite and reheating the cold-rolled austenitic stainless steel to generate a reversion austenitic phase at a ratio of 3 vol.% or more in a matrix composed of deformation-induced martensite phase, as specifically claimed in claim 7. Moreover, the reverted austenite in amended independent claim 7 is generated by heat treating at 500-700°C which is not regarded as conventional heat treatment as in Igawa for conditioning a structure of a steel sheet. Additionally, the Igawa patent discloses a process for producing a duplex structure of austenite and martensite in a martensitic stainless steel strip and not a method of manufacturing a high-strength austenitic stainless steel. Therefore, reconsideration of the rejection of amended independent claim 7 is requested.

Claim 6 depends from and adds further limitations to amended independent claim 5 and claim 8 depends from and adds further limitations to amended independent claim 7. Claims 6 and 8 are deemed to be patentable for the reasons disclosed hereinabove in

connection with amended independent claim 5 and amended independent claim 7. Reconsideration of the rejections of claim 6 and 8 is respectfully requested.

CONCLUSION

In view of the foregoing, Applicants respectfully submit that pending claims 5-8, as amended, distinguish over the prior art of record and are in condition for allowance. Reconsideration of the Examiner's rejections and allowance of the pending claims are respectfully requested.

Respectfully submitted,

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